Safety Pays on Winter Days!

Be Prepared for Winter Driving

Winter 2004-2005

Weather

Traveler's Tools

Safety Pays on Winter Days!

"Death Toll Climbs As More Storms Batter Europe"

In the Winter of 2001, at least 116 people died after three days of fierce winds, rain and snow storms raged across Western Europe. High winds batted Italy and Switzerland, and there was serious flooding in northern France and Belgium. Massive snow storms triggered avalanches that killed at least 12 people in Austria and seven in Germany. The heavy snow and rain also left more than 100 villages in central Transylvania without electricity as the brutal weather plaguing Europe reached Romania

Written by Stephanie Kanner, Staff Writer, DisasterRelief.org

Safety Pays on Winter Days!

You must understand how cold weather effects your vehicle before, during, and

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Before beginning your journey during wintry weather conditions:

- Ask yourself if your journey is absolutely essential.
- Check local and national weather forecasts.
- Listen to local and national radio for travel information.
- Tell someone what time you expect to arrive.
- Think about taking warm clothes, boots, and a flashlight – it could be a long walk to a phone.
- Clear your windows and mirrors of snow and ice before you set off.

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Weather

CLOTHING

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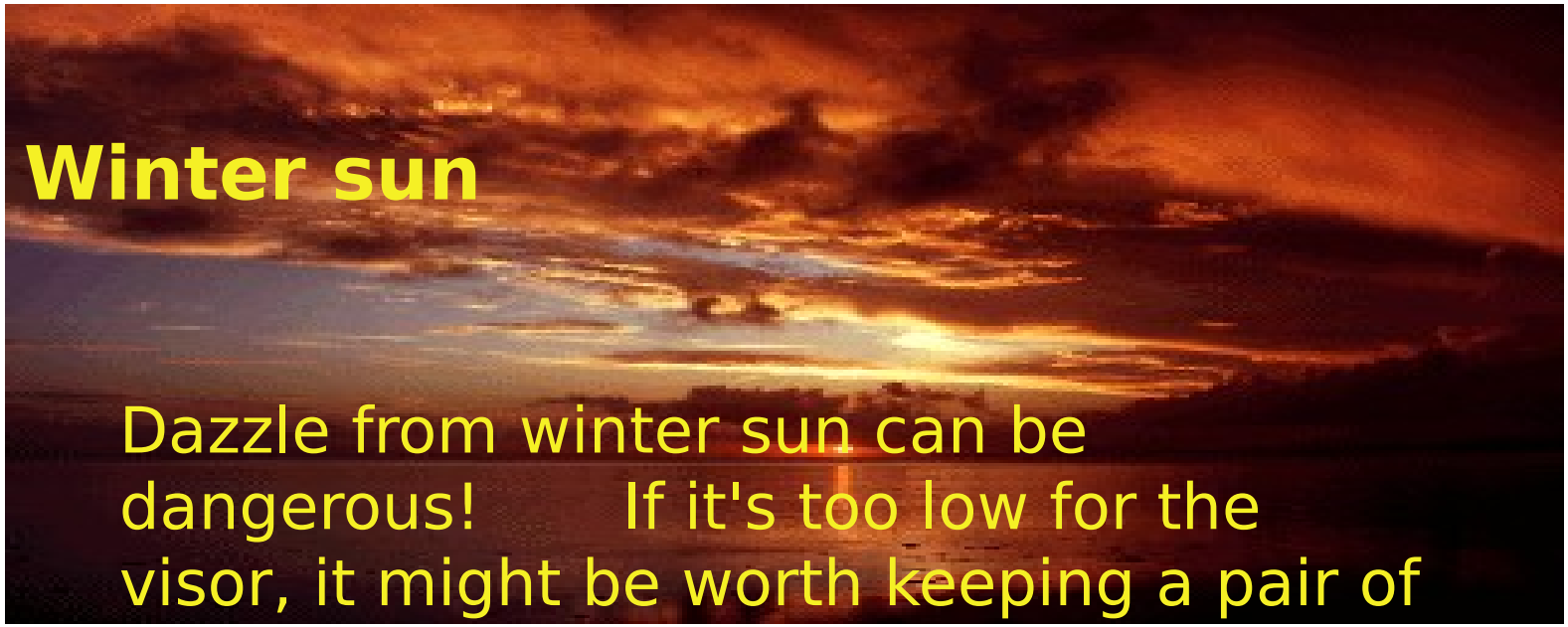
Winter sun
Dazzle from winter sun can be dangerous! If it's too low for the visor, it might be worth keeping a pair of sunglasses handy

WEAR QUALITY SUNGLASSES

Good quality sunglasses help highlight changes in the terrain and road surface, even in low visibility conditions

Dress Properly

- ✓ Wear several layers of thick, loose-fitting clothing.
- ✓ Wear a hat, scarf, and turtleneck sweater.
- ✓ The head and neck lose heat faster than any other part of the body.
- ✓ Dress for the cold.
- ✓ Don't forget a hat and

Safety Pays on Winter Days!

Prepare the Driver

- Wear warm clothes that do not restrict movement.

- In bad weather, let someone know your route and intended arrival time, so you can be searched for if you don't turn up after a reasonable delay.

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- Wear several layers of loose fitting, lightweight clothing.
- Wear mittens instead of gloves. Wear a hat.
- Remember that entrapped, insulating air warmed by body heat is the best protection from the cold.

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Examples of wind chill:

With the temperature of 5°F and winds blowing at 35 mph, the wind chill index would be -21°F, which could cause frostbite within 45 minutes. (Increased Danger)

With a temperature of -20°F and winds blowing at 35 mph, the wind chill index would be -55°F and could cause frostbite in less than 5 minutes. (Great Danger)

Wind Chill Temperature Table

Wind Speed (mph) ↓	Air Temperature (°F)																	
	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
0	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95

GREEN LITTLE DANGER (frostbite occurs in >2 hours in dry, exposed skin)

YELLOW INCREASED DANGER (frostbite could occur in 45 minutes or less in dry exposed skin)

RED GREAT DANGER (frostbite could occur in 5 minutes or less in dry, exposed skin)

Read right and down from the calm-air line. For example, a temperature of 0ºF combined with a 20 mph wind, has an equivalent cooling effect of -22ºF.

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Be Prepared for Winter Driving

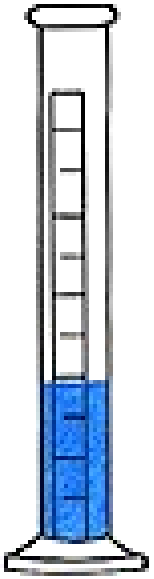
Vehicle Preparation

PREPARE FOR THE TRIP

Vehicle Preparation

Safety Pays on Winter Days!

Routine precautions help you avoid starting problems:



- **Get an engine tune-up in the fall**
- **Be sure all lights are in good working order**
- **Have the brakes adjusted**
- **Remember to switch to winter-weight oil if you aren't already using all-season oil**
- **Battery and voltage regulator should be checked**

✓ **Dirty oil can give you trouble in the winter, so change the oil and filter. Check the other filters, including the fuel, air and transmission filters.**

Vehicle Preparation

Safety Pays on Winter Days!

Make sure battery connections are good.

- **If the battery terminal posts seem to be building up a layer of corrosion, clean them with a paste of baking soda and water. Let it foam, and then rinse with water. Apply a thin film of petroleum jelly to the terminal posts to prevent corrosion, and reconnect.**

  Wear eye protection!

- **Be sure all fluids are at proper**

Vehicle Preparation

Safety Pays on Winter Days!

- **Antifreeze should not only be strong enough to prevent freezing, but fresh enough to prevent rust.**

- **Make sure wiper blades are cleaning properly. Consider changing to winter wiper blades, which are made for driving in snow. They are covered with a rubber boot to keep moisture away from working parts of the blade.**

✓ **Clean frost and snow off the windows, mirrors, lights and reflectors.**

Carbon monoxide.

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- **Carbon monoxide, present in exhaust fumes, is almost impossible to detect and CAN BE FATAL when breathed in a confined area. Because of the danger of carbon monoxide poisoning, don't let your car warm up in the garage for a long period of time, especially if you have an attached garage. The fumes easily can seep into the house and overcome those inside, even with an open garage door.**

http://www.phymac.med.wayne.edu/FacultyProfile/penney/COHQ/co1

Vehicle Preparation

- **The exhaust system: Have the exhaust system checked fully for leaks that could send carbon monoxide into your vehicle.**

- **Heating and cooling system: Check your radiator and hoses for cracks and leaks. Make sure the radiator cap, water pump, and thermostat work properly. Test the strength of the anti-freeze, and test the functioning of the heater and defroster.**

Vehicle Preparation

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- **Windshield: Make sure wipers are in good condition and fill up on winter washer fluid. Keep extra in your trunk. Ensure your windshield can give you clear vision of the road and traffic around you.**

- **One way to find a good repair facility to tune-up your vehicle is to look for an ASI Approved Auto Repair Services sign at garages or ask a friend.**

Vehicle Preparation

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Snow Chains

Snow chains can be rented from gas stations midway through your journey and then dropped off at another station furth

Sometimes

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km's traveled. Stop as s

as you think

the chains, because supplies are limited at each station.

Vehicle Preparation

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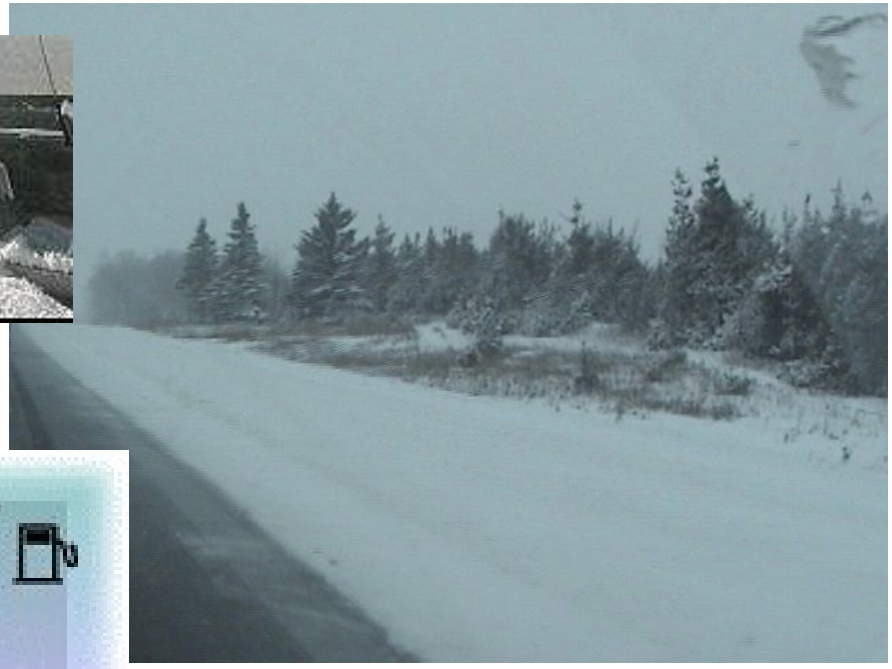
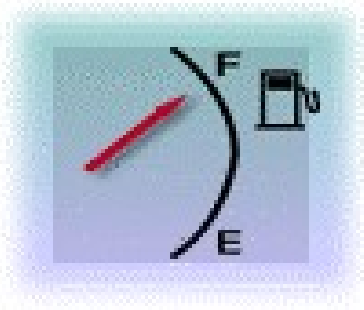
HOT HOT HOT -- DON'T FORGET TO FILL UP WITH FUEL





Essential Supplies

Safety Pays on Winter Days!

Here's what you'll want to have on hand, especially in an emergency:

- ✓ **Snow shovel.**
- ✓ **Scraper with a brush on one end.**
- ✓ **Tow chain or strap.**
- ✓ **Warning device (flares or reflective triangles).**
- ✓ **Brightly colored cloth to signal for help.**

*** Don't forget the gloves. Your fingers will stick to cold me**

Essential Supplies

Safety Pays on Winter Days!

Here's what you'll want to have on hand, especially in an emergency (Con't):

- ✓ **Flashlight (with extra batteries)**
- ✓ **Abrasive material (cat litter, sand, salt, or traction mats).**
- ✓ **Compass, Warning light or road flares, Booster cables**
- ✓ **First Aid Kit**

Keep the headlights on while driving. Don't use your bright lights because the snow can reflect light back into your eyes.

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German law requires that all automobiles be equipped with:

--a triangle caution sign

--a first aid kit (DIN number 13164). First aid kits are available at the

Safety Pays on Winter Days!

Be Prepared for Winter Driving

PREPARE

Safety Pays on Winter Days!

- Better understand the dangers of winter storms.
- Better identify current and future hazardous weather conditions based on current weather information that is received.
- Think critically through a weather situation and make intelligent decisions based on the reliability of that weather information.
- Better understand the personal responsibility for one's decisions during adverse winter weather and the

Safety Pays on Winter Days!

Winter Deaths

Everyone is potentially at risk during winter storms. The actual threat to you depends on your specific situation. Recent observations indicate the following:

- **Related to ice and snow:**
  - **About 70% occur in automobiles.**
  - **About 25% are people caught out in the storm.**
  - **Majority are males over 40 years old.**

Weather

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FLURRIES - Light snow falling for short durations. No accumulation or light dusting is all that is expected.

SHOWERS - Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

SQUALLS - Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.

Blowing snow – Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.

Heavy snow – 10 cm (4 in.) or more in 12 hours, or 15 cm (6 in.) or more in 24 hours, and snow falling reduces visibility up to a quarter of a mile or less.

Weather

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Snow is frozen precipitation in the form of six-sided crystals. Snow is produced when water vapor is deposited directly into o airborne particles as ice crystals, which remain frozen as they fall. When temperatures remain below freezing from the cloud to the ground, snow results.

Snow

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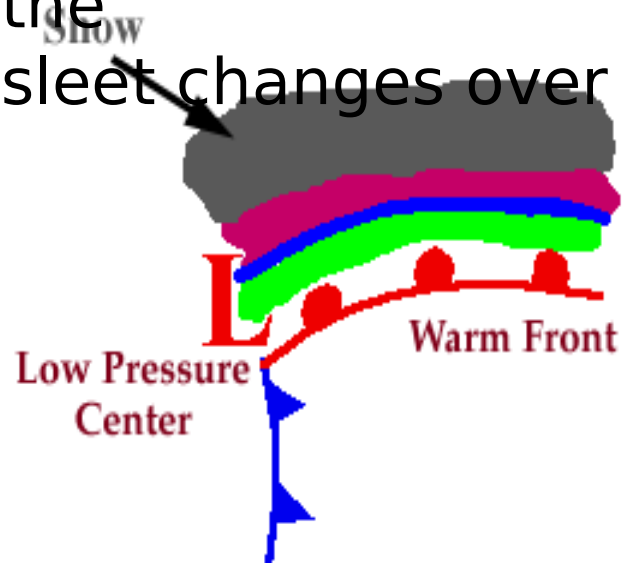
Progressing even further away from the warm front,
surface temperatures continue to decrease and the
sleet changes over to snow



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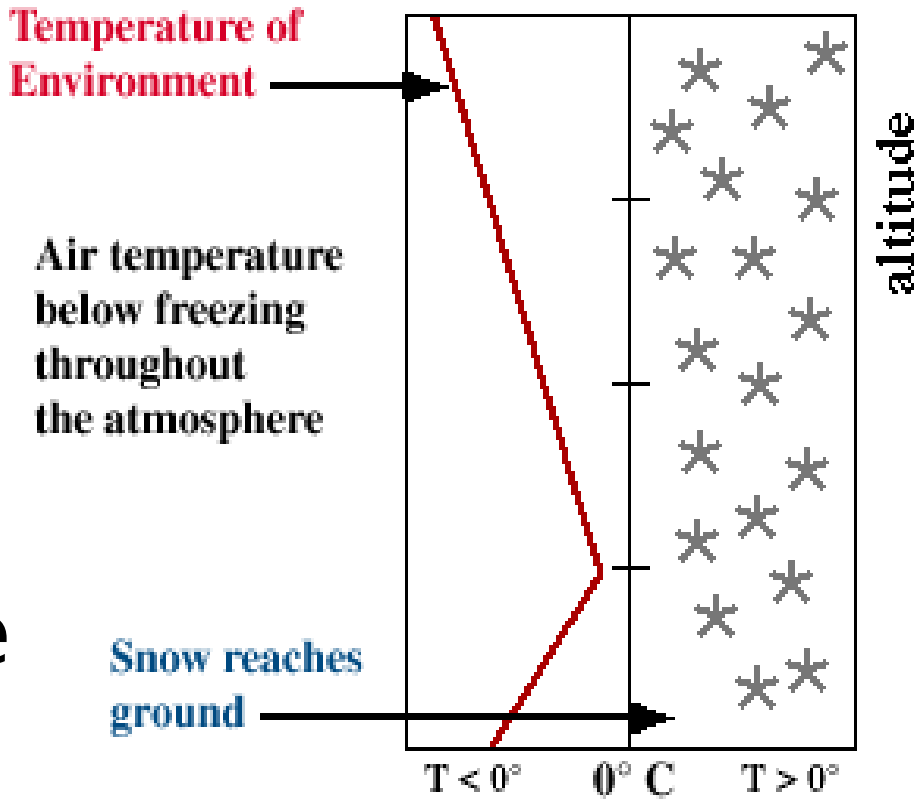
Snow-flakes

Snowflakes are simply aggregates of ice crystals that collect to each other as they fall toward the surface



Weather

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Blizzard - The most perilous of winter storms combining falling, blowing, drifting snow, winds of 40 km/hour or more, visibility less than 1 km, temperatures less than –10°C; duration: six hours or more.

Cold Wave – A rapid fall in temperature in a short period, requiring greater than normal protective measures.

Winds - The cause of blizzard conditions, drifting, reduced visibility and wind-chill effects.

Weather

Sleet

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Sleet falls to earth as ice pellets. These ice pellets are formed as snowflakes melt into raindrops as they pass through a thin layer of above-freezing air. The rain drops than refreeze into particles of ice as they pass through a sub-freezing layer of air near the ground.

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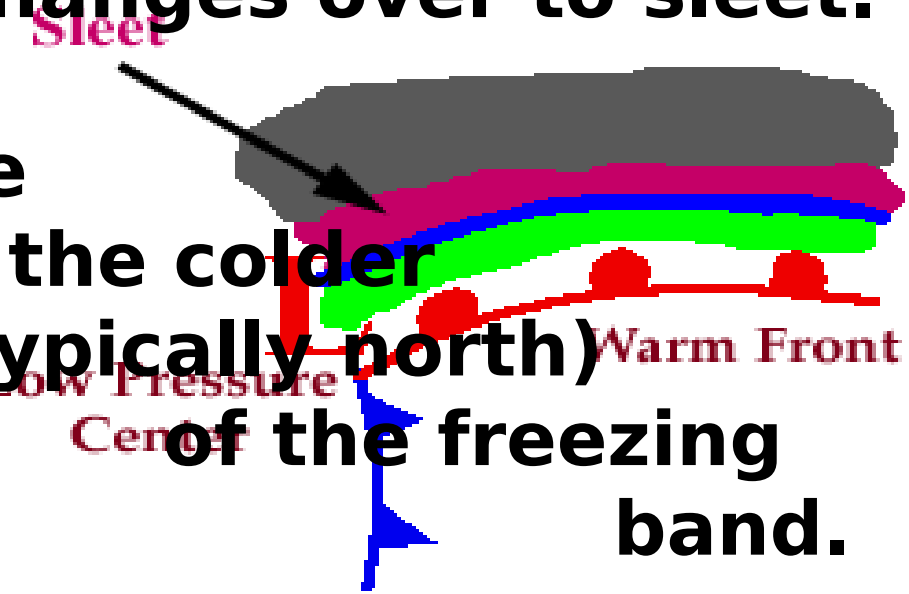
Progressing further ahead of the warm front, surface temperatures continue to decrease and the freezing rain eventually changes over to sleet.

Areas of sleet are located on the colder side (typically north) of the freezing rain band.



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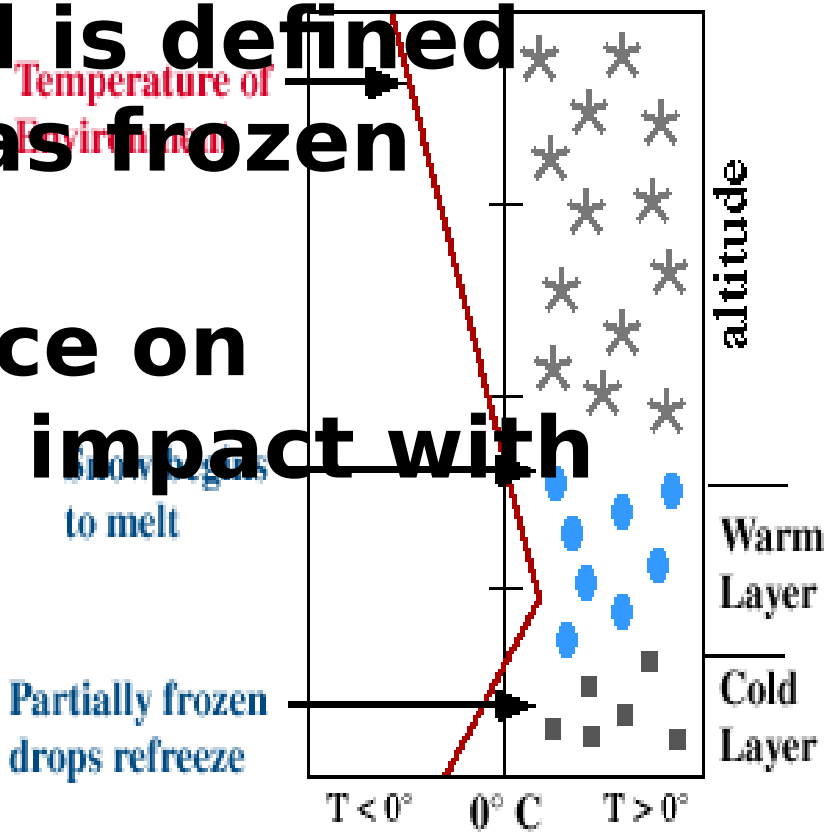
Sleet is less prevalent than freezing rain and is defined as frozen raindrops that bounce on impact with the ground or other objects.



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Sleet is more difficult to forecast than freezing rain bec
it develops
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is very
to freezing rain
in that it causes surfa
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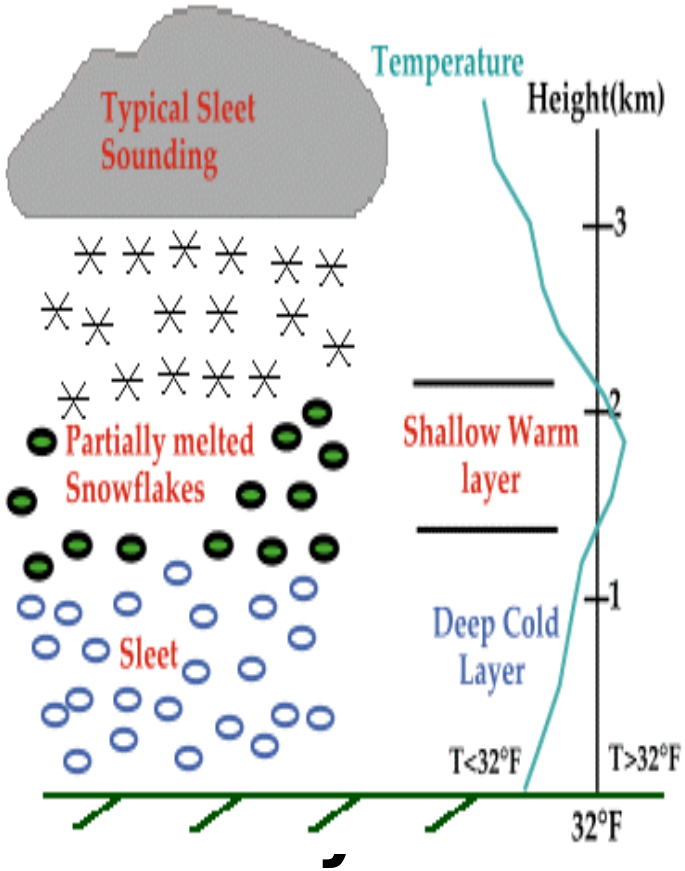
but is differ

visible.



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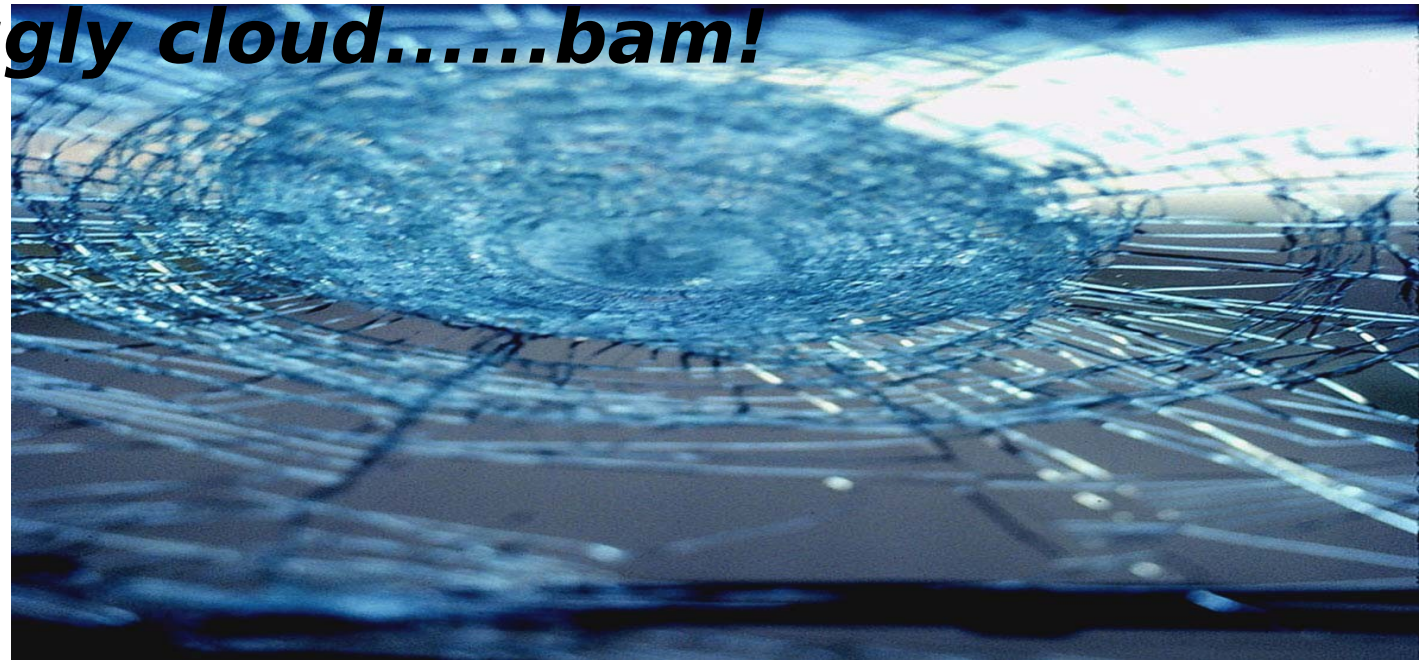
Visualize a baseball (Hail) dropped from a 747 flying at 30,000 feet; it's speed reaches 120 MPH, visualize you going 70 MPH under this big ugly cloud……bam!



Weather

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ICE

Expect icy conditions any time the outside air temperature reaches 40ºF or lower. Although water freezes at 32ºF, road surface can freeze when the air temperature drops to 40ºF or less.

An important place to watch for this condition is on bridges. Bridge surfaces are exposed to the wind and cool off faster than the rest of the road.

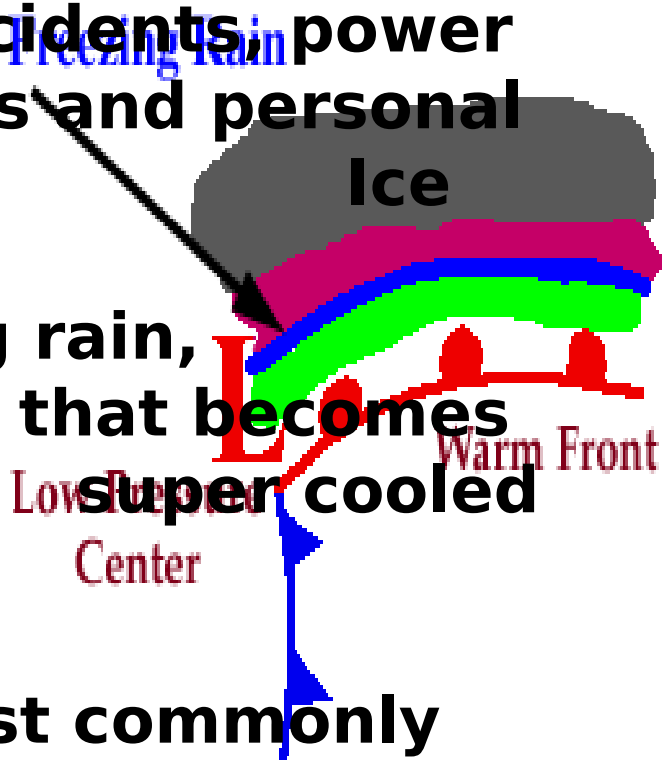
You should also prepare for icy conditions on roads through shaded areas where a cold wind can freeze a wet road surface

Freezing Rain

✓**Freezing rain is caused by rain droplets that freeze on contact with the ground or objects near the ground, leaving a frozen glaze. The temperature of the ground must be below freezing, and the rain droplets must exist in a liquid state at temperatures below freezing for freezing rain to occur.**

✓**Freezing rain can glaze roadways with ice causing extremely hazardous driving conditions.**

Ice storms can be the most devastating of winter weather phenomena and are often the cause of automobile accidents, power outages and personal injury.



Ice storms result from the accumulation of freezing rain, which is rain that becomes super cooled and freezes upon impact with cold surfaces.

Freezing rain is most commonly found in a narrow band on the cold side of a warm front, where surface

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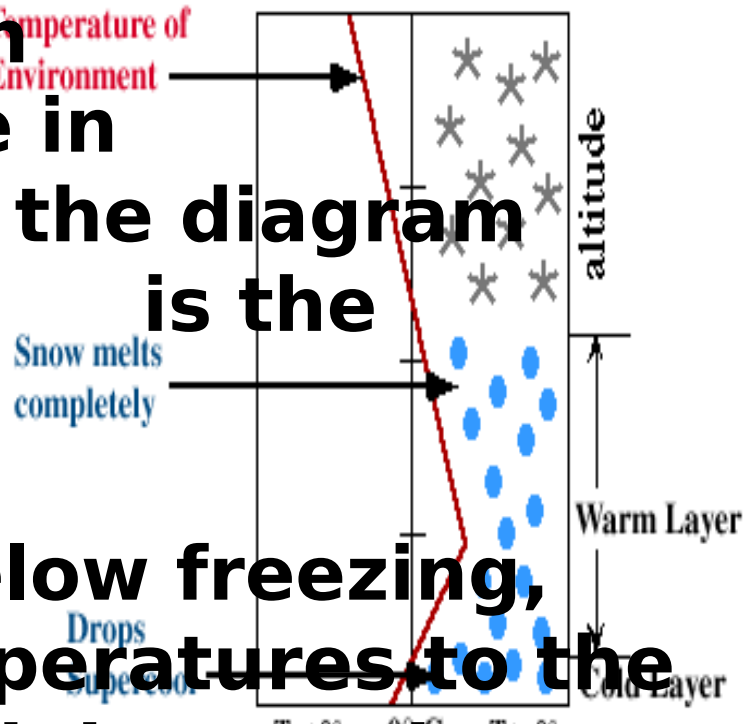
The diagram below shows a typical temperature profile for freezing rain with the red line indicating the atmosphere's temperature at any given altitude. The vertical line in the center of the diagram is the freezing line. Temperatures to the left of this line are below freezing, while temperatures to the right are above freezing.



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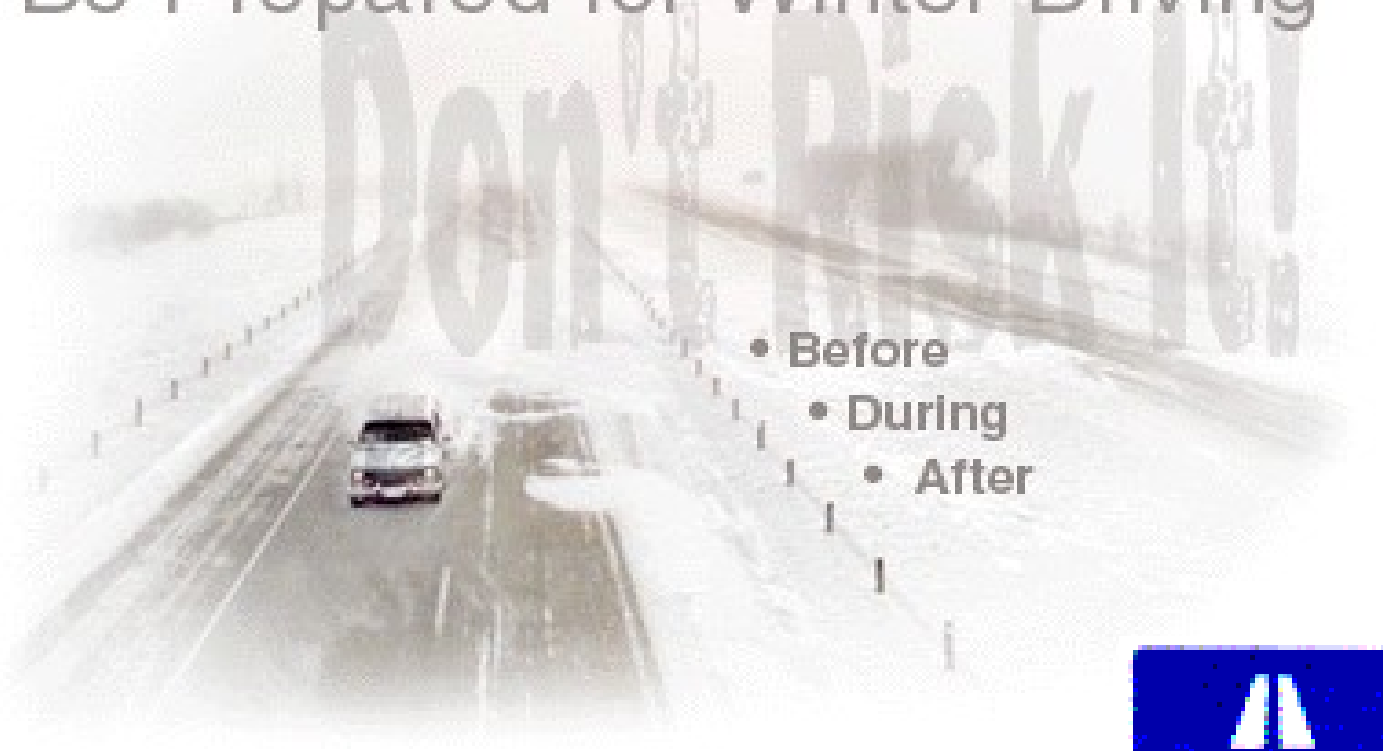
Be Prepared for Winter Driving



DURING OPERATION

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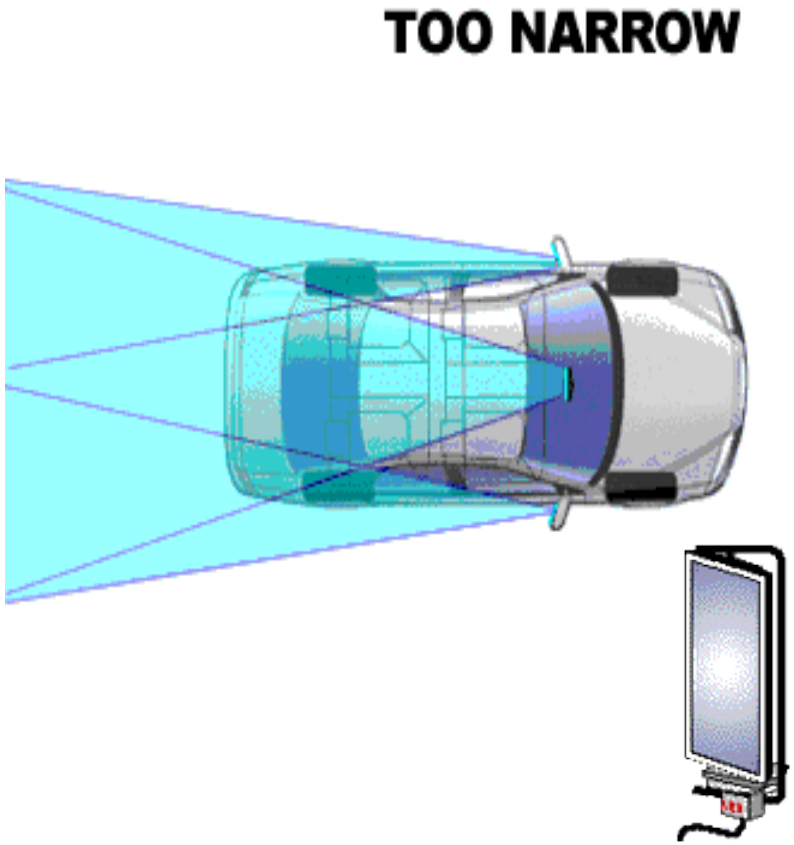
BLIND SPOTS

ADJUST MIRROWS



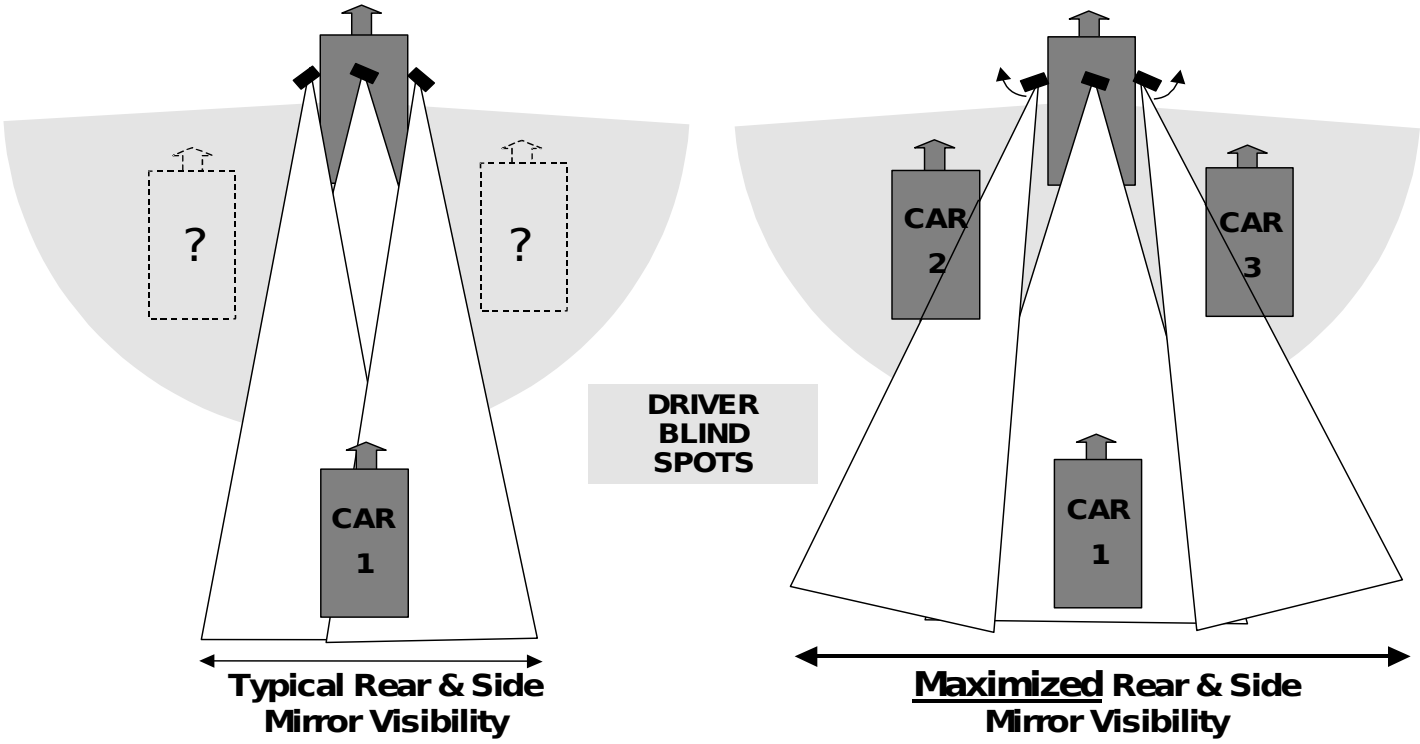
- Make sure all windows are clean and there is nothing blocking your vision.
- Adjust the seat so you can reach all pedals and controls easily.
- Adjust the inside and outside rearview mirrors.
- Fasten safety belts and shoulder harnesses so that they are firm and comfortable.

ECK YOUR BLIND SPO

BEFORE CHANGING LANES

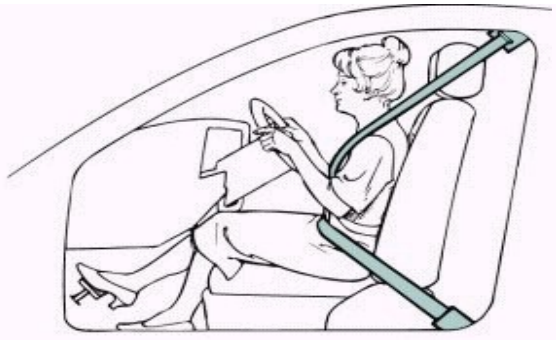
ALWAYS LOOK OVER YOUR SHOULDER

Adjust Your Mirrors For Maximum Visibility



Seat Belts/ Airbag

1. Unbelted and too close



2. Use seatbelt

3. Recline back of seat

4. Move seat rearward

5. Tilt wheel down

6. Correct belted 10” or more away

Safety Pays in Winter Days!

ANTICIPATE DIFFICULT SITUATIONS

- Studies show that 80% of all accidents could be prevented with only **one** more second to react. In many situations, this **one** second can be gained by looking far enough down the road to identify problem[illegible] part of them.

Safety Pays on Winter Days!

TURN ON YOUR LIGHTS - Whenever daytime visibility is less than ideal, turning on your lights allows you to see, and to be seen by others. Remember this rule of thumb, Wipers On - Lights On. When tra... snowy weather, remember to clear tail li... sign... headlamps regularly.

Safety Pays on Winter

According to the National Highway Traffic Safety Administration (NHTSA), sport utility vehicles have the highest rollover rate of any vehicle type in fatal crashes:

37 percent as compared with 25 percent for pickups, 19 percent for vans and 15 percent for passenger cars.

SUVs also have the highest rollover rate in injury crashes - 9 percent as compared with 7 percent for pickups, 4 percent for vans

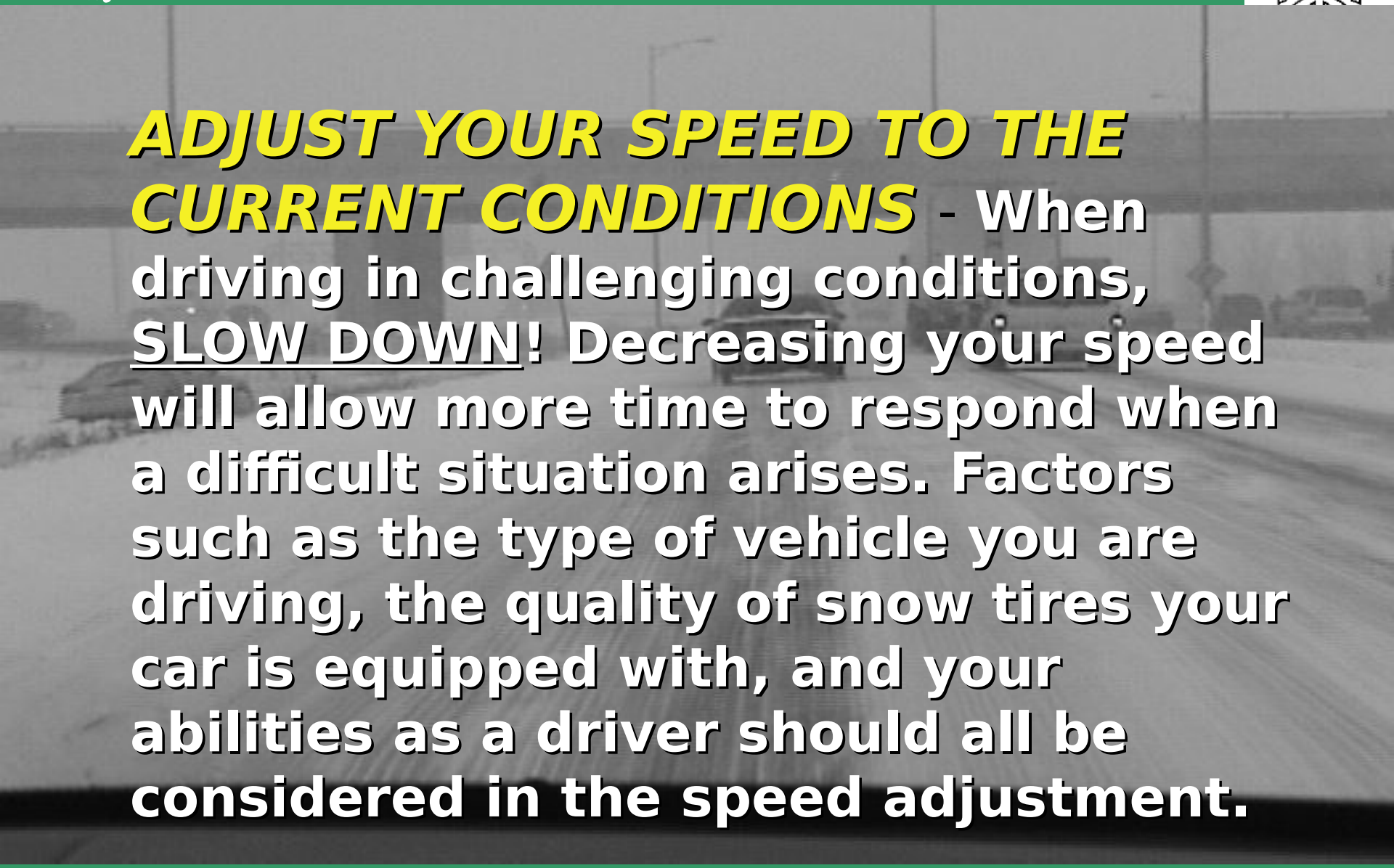
Safety Pays on Winter Days!

MANY PEOPLE BELIEVE **- that quick reactions make a good driver. The world's best drivers are trained to anticipate problems early and direct the vehicle appropriately before they become involved in a problem. Reacting too quickly can be dangerous if the driver's response is inappropriate.**

Safety Pays on Winter Days!

Initial speed		Stopping distance	Stopping time
km/h	mph	m	s
40	25	36	5.4
45	28	46	6.0
50	31	52	6.6
55	34	62	7.1
60	37	72	7.7
65	40	83	8.2
70	44	95	8.8
75	47	108	9.3
80	50	121	9.9
90	56	150	11.0
100	62	182	12.1
110	68	217	13.2
120	75	256	14.3
130	81	297	15.4
140	87	341	16.6
150	93	389	17.6

Stopping Distances and Stopping Times at -2.5 m/s^2



ADJUST YOUR SPEED TO THE CURRENT CONDITIONS - When driving in challenging conditions, SLOW DOWN! Decreasing your speed will allow more time to respond when a difficult situation arises. Factors such as the type of vehicle you are driving, the quality of snow tires your car is equipped with, and your abilities as a driver should all be considered in the speed adjustment.

WHITE ICE

Snow that has been compacted during the day and has slightly melted will freeze at night. Usually this white ice can be seen on the road. When traveling on white ice, drive very slowly. If you cannot find a place to park until conditions improve, install tire chains for better traction.

Slick trick -- Watch for slippery spots called glare ice. These may appear on an otherwise clear road in shaded areas. If you see a patch of ice ahead, brake before reaching it and try not to brake while actually on the ice.

Black Ice

- Black ice fools drivers. Its shine tricks them into thinking it's water on the road. What they may not realize is that condensation, such as dew, freezes when temperatures reach 32°F or below. This forms an extra-thin layer of ice on the road.
- This shiny ice surface is one of the most slippery road conditions. Black ice is likely to form first under bridges and overpasses, in shady spots and at intersections.

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Braking

The jury is still out on whether rapid pumping of the brake pedal is more effective on slick surfaces than applying a soft steady pressure on the pedal, letting off just before the tires begin to slide. Of course, if the latter method is attempted and the tires do begin to skid, the driver must immediately let off the pedal and recover by steering in the direction of the skid.

Watch out for fog - it drifts rapidly and is often patchy

- **Drive very slowly using dipped headlights.**
- **Use fog lights if visibility is seriously reduced, but remember to switch them off when visibility improves.**
- **Don't hang on to the tail lights of the vehicle in front. This gives you a false sense of security and means you may be driving too close.**
- **Don't speed up suddenly - even if it seems to be clearing, you can suddenly find yourself**

Safety Pays on Winter Days!

When do I use Fog Lights?

Fog lights are designed to be used during fog or foul weather, in conjunction with your low beams to focus as much light as possible on the ground directly in front of you. Providing increased light on the ground helps you to follow the road and helps reduce the reflection on the fog from your headlights.

Note: To prevent blinding drivers behind you, rear fog lights on European spec cars are not allowed to

Safety Pays on Winter Days!

Fog Safety Tips:

- ✓ Drive with lights on low beam
- ✓ Reduce speed
- ✓ Avoid crossing traffic unless absolutely necessary
- ✓ Listen for traffic you cannot see

Safety Pays on Winter

Fog Safety Tips (Con't)

- ✓Use wipers and defrost as necessary visi
- ✓Be patient! Don't pass lines of traffic.
- ✓Unless absolutely necessary, don't stop on any freeway or other heavily traveled road.
- ✓Consider postponing your trip until the fog clears.

Safety Pays on Winter Days!

Risk Management Reminders

Prepare the driver

- If you must drive in bad weather, plan ahead and make sure you have enough fuel.
- See and be seen; clear all snow from the hood, roof, windows and lights.
- Clear all windows of fog and moisture.
- If visibility becomes poor, find a place to safely pull off the road as

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Be Prepared for Winter Driving

Weather

TIRE/TRACTION/SPEED

Safety Pays on Winter Days!

Snow Chains

Snow chains can be rented from gas stations

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out not always. The
: is low and is based on
km's traveled. Stop as
as you think you
the chains, because
are limited at each
may need
supplies
station.

Safety Pays on Winter Days!

If you get stuck

Rock back and forth by first putting it into forward and then reverse

- **Gentle accelerator pedal so the tires don't spin.**
- **There is also some value to letting some air out of the drive wheel tires to get more tire-to-snow contact if you are stuck in deep snow. Don't deflate your tires below 18 p.s.i., and stop at the first filling station to re-inflate them to recommended pressure if you get out.**

Safety Pays on Winter Days!

When roads are icy or slus

- Drive slowly, allowing extra room to slow down and stop - it can take ten times longer to stop in icy conditions than on a dry road.
- Use the highest gear possible to avoid wheel spin.
- Maneuver gently, avoid harsh braking and acceleration.
- To brake on ice and snow without locking your wheels, get into a low gear earlier than normal, allow your speed to fall and use the brake pedal gently.

Safety Pays on Winter Days!

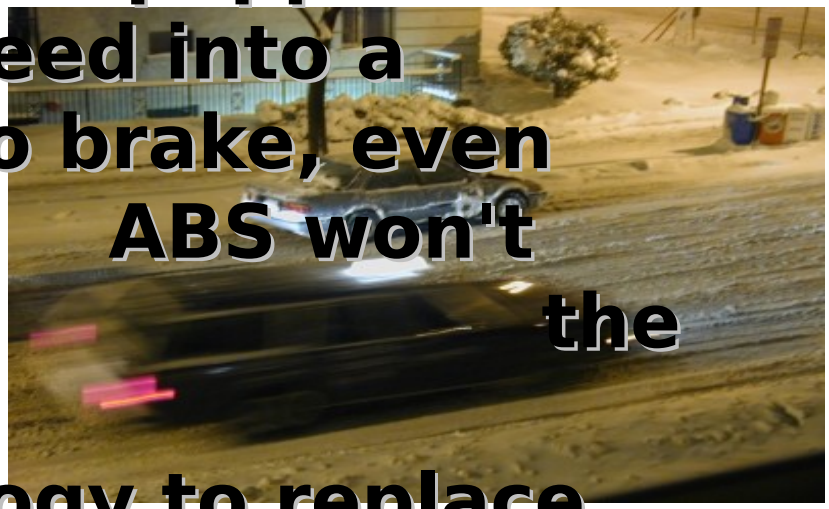
If your car has ABS, follow this braking procedure:

- When you need to stop, apply firm, steady pressure to the brake pedal.
- Gradually steer the car around any obstacles.
- Release pressure on the brake.
- Resume driving normally, but consider lowering your speed.

If you don't have ABS, gently apply pumping pressure to the brakes during slippery conditions to avoid wheel lockup.

Safety Pays on Winter Days!

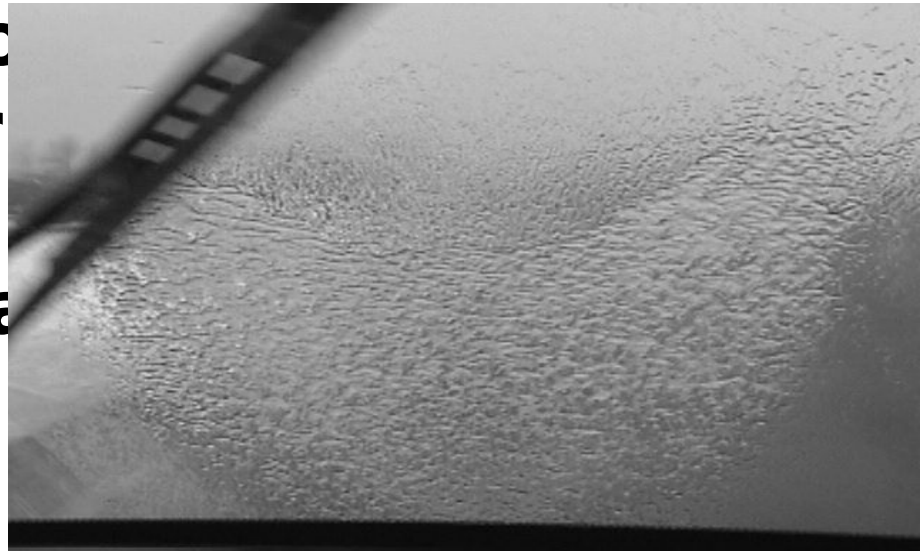
ANTI - LOCK BRAKES CAN'T PERFORM MIRACLES - Don't be misled by ABS braking systems. Braking efficiency is limited by the grip available, and the type of tires with which your car is equipped. If you carry to much speed into a corner and then try to brake, even ABS won't keep you on the road. Never count on technology to replace good judgment.



Safety Pays on Winter Days!

MAINTAIN A COMFORTABLE DRIVING ENVIRONMENT - A

constant flow of cool air will help to keep you alert, and keep the windows clear of frost. Keeping one window slightly open will allo



sirens and other war

more

la

coats, and

drive in ski boots.

Safety Pays on Winter Days!

If the tires begin to lose traction, resist the temptation to stomp on the brakes.

http://www.tirerack.com/tires/tests/2vs4.htm

Safety Pays on Winter Days!

Recovery from skids

No matter what kind of car you are driving, whenever a skid occurs you should turn the front wheels towards the direction in which the rear wheels are skidding.

Safety Pays on Winter Days!

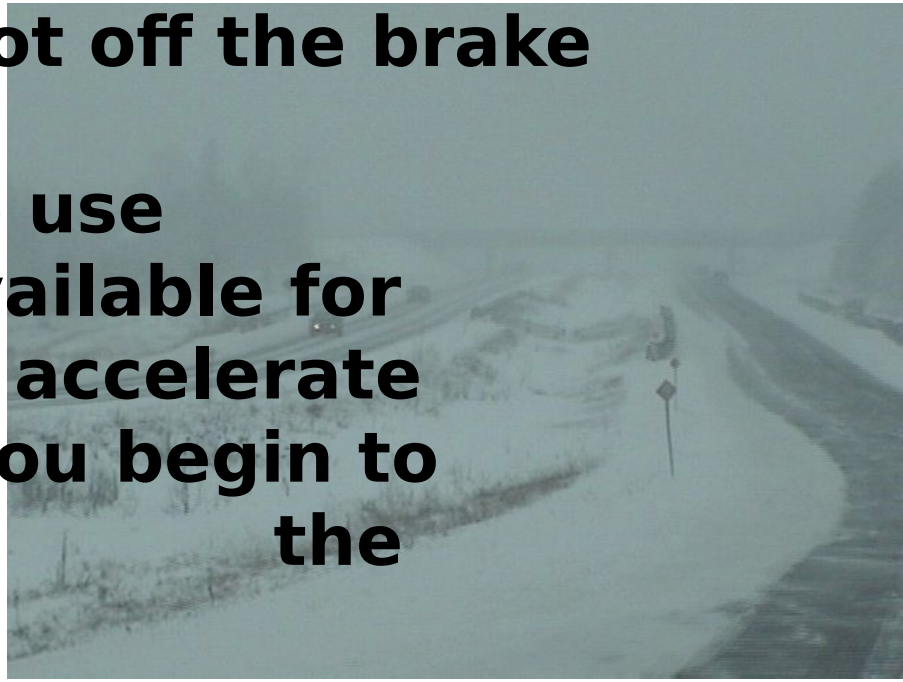
WHEN DRIVING AT NIGHT **- Leave your headlamps on low beam when driving in snow or fog. This practice minimizes the reflection and glare, improves visibility, and reduces eye**

cars approach, focus on right side of the roadway to help maintain good vision.

night

Safety Pays on Winter Days!

USE GRIP EFFECTIVELY **- When roads are slippery, use all of the grip available for one thing at a time. Brake only before the curve when the car is traveling straight. Taking your foot off the brake before you steer into the curve allows you to use all of the grip available for steering. Don't accelerate until you begin to straighten the steering wheel when exiting the turn. This technique will allow you to be 100% effective at each**



Safety Pays on Winter Days!

The Penny Test Hold a penny, head first, into the tread "valley" - if you can see the top of Lincoln's head, then that portion is worn below the legal depth of 2/32 of an inch. Measure in four spots across the tread. Tires with two adjacent valleys at 2/32 or less are worn out. Loss of control ar s worse than being illegal, so towards safety in the winter.

Safety Pays on Winter Days!

USE SNOW AND ICE TIRES IN WINTER CONDITIONS - Be aware that an all-season tire is a compromise, and will not perform as well as a snow and ice tire. To maximize safety and control, use the best snow and ice tires available. The studless tire is revolutionary and is considered by many to be a quantum leap in snow tire technology.

Safety Pays on Winter Days!

DON'T OVERESTIMATE - **The capability of four wheel drive vehicles. Many drivers mistakenly believe that four wheel drive is all powerful. Every type of vehicle depends on four small contact patches where the tire meets the road for traction. This small contact area is the limiting factor of any vehicle on a slippery surface. Four wheel drive does not improve braking or cornering effectiveness.**

Safety Pays on Winter Days!

WHEN DRIVING UP A STEEP HILL **– Gain speed and momentum on the flat before starting uphill. When the car begins to slow part way up the hill ease up on the accelerator, allow the car to slow down and crest the hill slowly. If you try and accelerate too hard and spin the wheels, you may lose momentum and not make the top. If s better to make the top at a slower speed than to not make it at all.**

Safety Pays on Winter Days!

Two snow tires are worse than no snow tires. On front-wheel-drive cars, mounting snow and ice tires on the front axle but not the rear causes oversteering or "fishtailing." For rear-drive models, remember that steering and stopping are mostly accomplished through the front wheels. Use snow tires on all four wheels.

Safety Pays on Winter Days!

Evaluate your need for a snow or ice tire. Remember that all-season and all-terrain tires can be a compromise and not perform well in all conditions. * Keep your tires properly inflated to the pressure specified in your owner's manual. Use a quality gauge (not the one at the gas station) and check your tires when they are cold - they heat up while driving and increase in pressure up to 8 psi, giving an inaccurate reading. Releasing air from a properly-inflated tire which has warmed from driving is a common mistake.

Safety Pays on Winter Days!

Avoid hydroplaning

Hydroplaning is caused by driving too fast on wet road surfaces. When driving at speeds of less than about 35 miles per hour (56 kilometers per hour), your tires will brush off the water on the road's surface in much the same way window wipers move the water on your windshield.

Safety Pays on Winter Days!

Winter Driving Tips.

Winter is here or will be here soon. Winter driving puts to the test the most experienced drivers.

1. The best way to avoid winter driving problems is to stay home when there is ice or snow on the roads.

2. Ice and snow covered roads are slicker when the temperature is 32 degrees than when the temperature is 10 degrees or lower.

3. Wide tires do not perform as well as narrower tires on ice or snow.

Safety Pays on Winter Days!

4. All weather steel belted radial tires perform better on snow or ice than do other tires.

5. Studded tires give better forward traction and steering and braking control.

6. Chains give better forward traction but very little steering or braking control.

7. Automobiles with positive traction generally perform better than those which don't.

8. Front wheel drive cars generally perform better on snow and ice than do those with rear wheel drive.

Safety Pays on Winter Days!

9. When driving an automobile with an automatic transmission on snow or ice, shift down to a lower drive position.

10. When driving an automobile with a manual transmission on snow or ice, shift down to the third or fourth gear.

11. In a slide (skid), point the front wheels in the direction that you want to go and very slightly increase acceleration.

12. When braking on snow or ice, do not brake so hard that the vehicle's wheels slide. In that case your vehicle is not under your control.

Safety Pays on Winter Days!

13. When approaching a hill on snow or ice, do not attempt to go up it unless you can do so without increasing acceleration. Increasing acceleration can cause your vehicle's tires to spin and lose forward motion.

14. On snow or ice, slow down before going downhill and the more so if there is a curve at the bottom. You have the least control over your vehicle when going down hill.

15. Pouring bleach on your vehicle's tires increases traction for a short distance.

Safety Pays on Winter Days!

16. When stuck in snow or ice, accelerate just enough to cause the drive wheels to move. Excessive acceleration just causes your vehicle's tires to spin and provides no traction.

17. Let your car engine warm up well before starting out to drive on snow or ice. That permits it to idle at a slower rate giving you more control.

18. If you have a standard shift transmission, do not push the clutch in when going around a corner or down hill. When you have the clutch in, you have very little control of your vehicle

Safety Pays on Winter Days!

Winter Driving – Skid Control

The combination of hills and snow or ice makes for very interesting driving. If you are a driver in this category – take heed. Following are some tips that might help you stop and go or save you from an expensive fender bender this winter.

Safety Pays on Winter Days!

What type of tires are best?

- Type of conditions you are most likely to face
- Radial tires are better than bias ply because they run cooler and put more tread on the road
- Snow tires with a composition tread such as sawdust or walnut shells run equally well in deep snow and ice
- Deep cleat mud and snow tires are good in slush, mud or deep snow.

Safety Pays on Winter Days!

Wheel Spin

- Manual transmission car, starting out in 2nd gear may produce less wheel spin than 1st gear due to less engine power being applied to the wheels

- let up on the accelerator or push in the clutch when you feel the tires break loose and start to spin. When the wheels stop spinning and catch hold, then you apply power again very gently.

Safety Pays on Winter Days!

Always test your road

When you first pull out onto the road, if there is no traffic, you should lightly tap the brakes to see if there is a reaction. Be sure to let off the brakes immediately if the tires slide so you don't lose control. Attempt this a few more times to experiment with how hard you can brake without putting your car into a skid. You can also accelerate a bit to see how much it will take to make the drive wheels spin. Be sure to let off the accelerator if the tires do spin so you don't lose control.

Safety Pays on Winter Days!

What kind of car or truck is best in ice and snow?

Usually an average four wheel drive vehicle will outperform the average two wheel drive vehicle, but this is true only for making forward or rearward progress. Four wheel drive vehicles do not stop any better. It is very common to see four wheel drive vehicles off in the ditch because their drivers got overconfident and went too fast for conditions.

Safety Pays on Winter Days!

Which two wheel drive vehicles are best in slick conditions?

Two wheel drive vehicles, those that have the engine situated over the drive wheels (either front or rear).

Front wheel drive vehicles tend to be better than rear wheel drive cars in maintaining a straight path at high speeds on slippery roads.

If you do get into a skid with a front wheel car, recovery can prove substantially more difficult than with a rear wheel drive car.

Safety Pays on Winter Days!

Does extra weight added over the drive wheels improve traction?

Yes - weight in the trunk of your car will help you start out from stop signs, climb hills, etc. Don't try to drive at high speeds (like over 50) with a bunch of weight in the trunk.

Safety Pays on Winter Days!

What would make four wheel drive vehicles perform better?

- **Disengage the front wheel drive and the wheel hubs on older four wheel drive vehicles when traveling slick roads at higher speeds.**

- **New full-time four wheel drive vehicles have power dividers between the front and the rear wheels. These dividers allow the front wheels (while engaged) to run faster than the rear, if need be, to recover from a skid.**

Safety Pays on Winter Days!

Rear wheel drive

If you are driving a rear wheel drive car that is skidding, you should take your foot off the accelerator and steer the front wheels in the direction of the skid until control (hopefully) is regained.

Safety Pays on Winter Days!

Front wheel drive

Front wheel drive cars - apply some power to the drive wheels to help pull the car straight when the rear wheels skid.

Another thing that will help is to have studded tires on all four wheels. As long as you maintain safe levels of speeds.

Probably the most important thing to remember is that it is not so important what type of car you drive, but how you drive what you have. Many times a properly driven two wheel drive vehicle can go where an improperly driven four wheel drive vehicle can't.

Safety Pays on Winter Days!

Slow down and live!

It is most important to remember to slow down when the roads get slippery, and to practice anticipating what could be coming around the next curve. You have no control over who is behind the wheel of that vehicle approaching you. If you are going so fast that you are on the edge of control yourself, you will have no margin of error if the other driver suddenly loses control of their vehicle.

Safety Pays on Winter Days!

FOLLOW THE TEN-POINT PLAN FOR SAFER WINTER DRIVING

Hand in hand with winter comes heavy rain, fog, ice and snow. Bad weather affects visibility and stopping distances. Follow this ten-point plan and be a safer winter driver.

1. Allow extra time for your journey and reduce your speed.

2. Increase the distance between you and the vehicle in front, and be certain you can stop within the distance you can see to be clear.

Safety Pays on Winter Days!

3. If visibility is seriously reduced by fog, use dipped headlights and rear fog lights. (Use rear fog lights only when visibility is less than 50 meters). Switch on your wipers to keep your windscreen clear.

4. Remember to turn fog lights off when they are no longer needed as they can be a distraction to other drivers.

5. Remember the obvious - you can see snow, but you can't always see ice.

6. Avoid sudden braking, accelerating too quickly and harsh steering in slippery conditions.

Safety Pays on Winter Days!

7. Keep your windshield clear of snow and from time to time that there is not a ow on your lights.

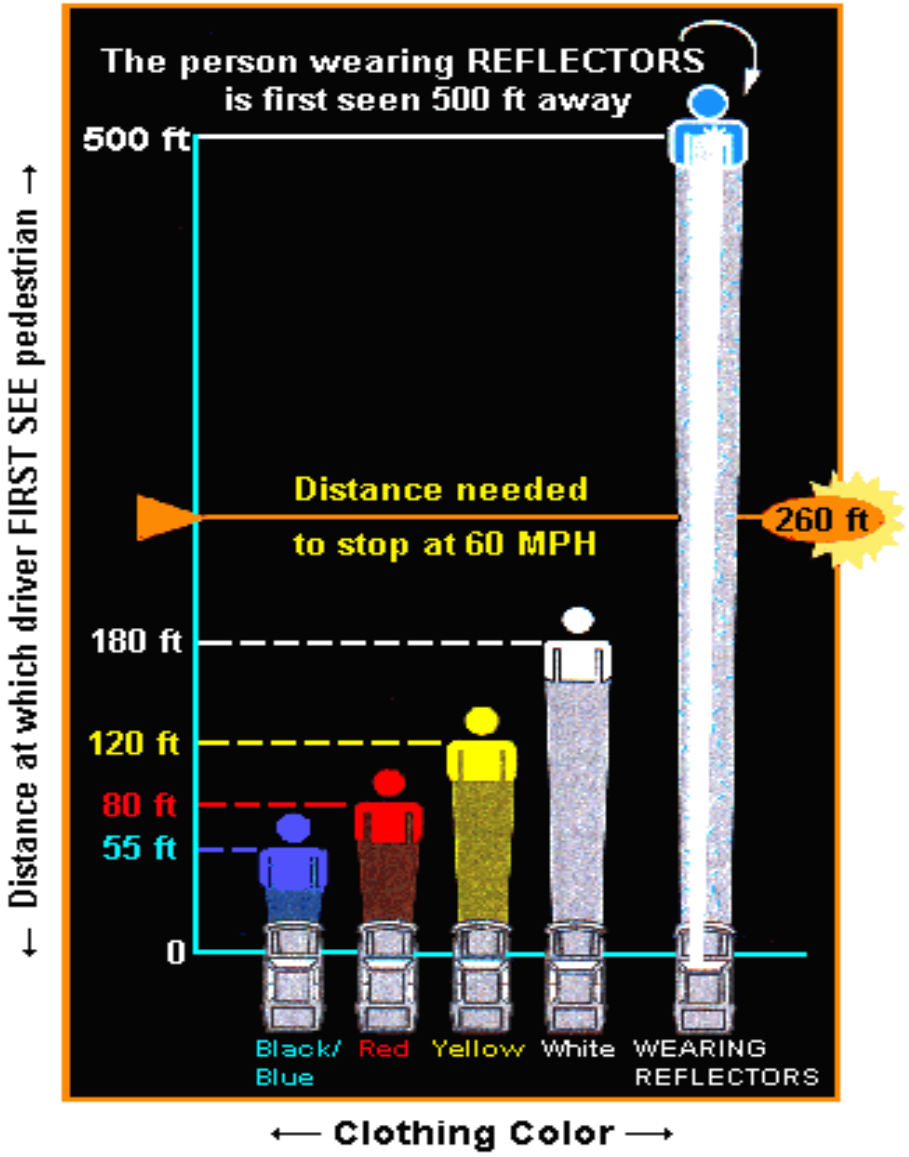
8. Carry a shovel, extra warm clothing, a blanket, a snack and a drink - especially if you are traveling through isolated areas.

9. If you are going on a long journey, advise someone of your destination and what time you expect to arrive.

10. If you feel uncomfortable driving in bad weather, consider whether your journey is really necessary or whether you can go by an alternative to the car.

Safety Pays on Winter Days!

- Studies have shown that pedestrians walking along a road in dark clothing at night are first seen approximately 55 feet away giving the driver less than one second reaction time.
- A driver traveling at 60 MPH needs over 260 feet to stop.

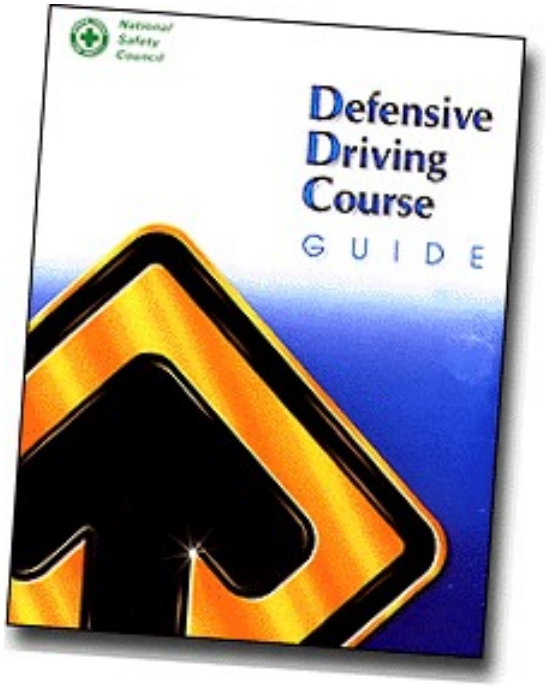


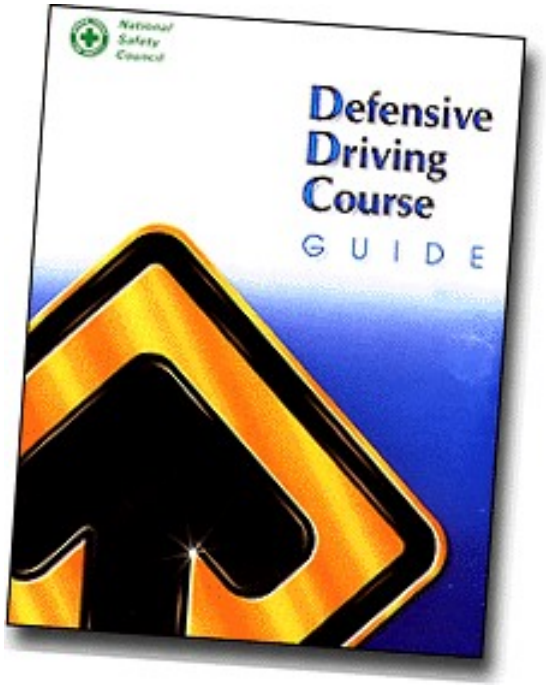
AGGRESSIVE DRIVIN

- **Speed, tailgating, fail to yield, weave in-and-out of traffic, pass on the right, make improper and unsafe lane changes, run stop signs and red lights, make hand and facial gestures, scream, honk, and flash lights**

- **Be impaired by alcohol or drugs, and drive unbelted or take other unsafe actions**

Safety Pays on Winter Days!





Safety Pays on Winter Days!

For more information on winter driving, consult your local BSB or ASG Safety Office, Your Command Safety Officer, or The US Army Europe Safety Office.

Winter weather advisories, road conditions and other winter safety tips can be heard on Armed Forces Radio.

Please visit our website at:

http://www.per.hqusareur.army.mil/services/safetydivision/main.htm